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HOUSEKEEPERS' CHAT Friday, March 13, 1936

(FOR BROADCAST USE ONLY)

Subject: "ENERGY RATIONS." Information from the Bureau of Home Economics, United States Department of Agriculture.

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If you remember back to your school-days, you'll probably remember hearing the teacher say: "The human body is a sort of engine that must be well-built and kept in good condition and supplied with fuel to keep it going."

And to illustrate, she would say something like this: "The steam engine gets its power from burning coal; the automobile engine from burning gasoline; and the human engine from burning food."

The scientists explain that the tissues of the human body burn those substances in food which can be burned and used for energy -- that is, the carbohydrates, the fats and the proteins. All foods contain one or more of these compounds. But the foods we rely on as "energy foods" are those that contain the most carbohydrate, or the most fat, or both.

The energy foods in a well-planned family dinner include such carbohydrate foods as breads and cereal dishes of all kinds and potatoes and sweet-potatoes and sugar, and such fats as butter, margarine, lard or other cooking fats and salad oils.

The important carbohydrates for body fuel are the starches and sugars. The process of digestion converts these into the simple sugar known as glucose. The blood takes up this glucose and carries it to all the body tissues to be burned as needed for energy, or stored for future use. The body stores it in 2 ways. It converts it into glycogen and stores it in the liver and muscles. Then when needed it changes back again to glucose and is again taken up by the blood. When we eat more starch or sugar than we need for energy or than the body can store as glycogen, the rest goes mostly into fat in the body tissues.

The starchy foods are generally more important in the diet than sugar because they always contain other food substances and therefore serve more than one body need. Pure sugar and pure fat have energy value only. But many of the starchy foods -- whole grains and root vegetables, for example -- have important values in proteins, minerals and vitamins. As you know, plants store up starch in their seeds and also in their roots.

Green fruits contain starch, too, but this turns to sugar as the fruit ripens. Each grain and vegetable has its own characteristic starch with granules of different size and shape, so that wheat-starch, corn-starch, potato-starch, and all the rest look very different under the microscope. And they have different

values for laundry purposes, too. But chemically they are all the same carbohydrate and have the same food value, no matter which grain or vegetable they come from. And starch does not dissolve in water -- a fact worth remembering when you thicken sauce or gravy.

That other carbohydrate, sugar, does dissolve in water. You find it in the juice or sap of plants and trees as well as in their fruit. You find it also in milk. Chemically speaking, our common foods have 5 different sugars. The first kind of sugar is called sucrose. You find it in the sap of the sugar cane and the sugar-maple tree, and also in the sugar beet. So all our table sugar is sucrose. The second kind of sugar is fructose or levulose. Those are the technical names. A simpler name is just fruit-sugar. You find fruit-sugar in fruits and in honey and it is the sweetest sugar of them all. Vegetables and fruits also contain glucose. The fourth sugar is maltose that you find in sprouting or malted grains. Finally milk contains a sugar called lactose. There you have the sugar family, listeners -- sucrose, fructose or fruit sugar, glucose, maltose, and lactose.

Sugar in crystalline form -- that is, granulated or powdered, or sugar in a sirup form is highly concentrated. Even a teaspoonful eaten alone may be cloying and sufficient to take away the appetite. Of course, sugar has high energy value and sweet flavor. But that is all the value it has. So nutritionists tell us nowadays that the best use for sugar in the diet is as flavoring. The clever cook will add just enough sugar to bring out a contrast with other flavors in the food she is preparing, just enough sweetness to suit each special food but not enough to obscure good flavor. As for candies and sweets in general, we don't need the nutrition people to tell us that the best time for them is at the end of the meal after other foods have satisfied the body's needs for such essentials as protein, minerals and vitamins. Bread, vegetables and fat will have supplied the energy.

Now fats as well as sweets are concentrated food. Unlike the carbohydrates they are found throughout the animal kingdom and to some extent also in the vegetable kingdom. We have fat in concentrated form in butter, margarine, salad oil, and the various cooking fats. Lard is pure fat. So is cottonseed oil, and corn oil, and peanut oil. Butter and margarine are largely fat. Olives and most nuts contain a high percentage of fat. All meats, eggs, fish and milk also contain fat.

As with concentrated sugar, so with concentrated fat -- we have to go slow on it. We distribute it among other foods-- spread butter on our bread, season our beans with pork, use shortening in bread and pastry dough, add oil dressing to our salads. For the same reason, the good cook when she fries food, is careful to have it crisp, to have the fat in small amounts on the surface rather than soaked thickly into the food.

Listeners, there are a few facts about when, where and how to take your energy rations.

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